

What is claimed is:

- 1 (1) A system for managing and utilizing location-based information, said system being  
2 adapted to create a plurality of interrelated location hierarchies, to create a plurality of data types  
3 each having user-definable attributes, to create data records within said plurality of data types by  
4 providing values for said user-definable attributes, to map said data records into said location  
5 hierarchies, to create relationships between said data types and records, and to perform location  
6 intersect queries for quickly retrieving data records.
  
- 1 (2) The system of claim 1 wherein said system is adapted to perform said location intersect  
2 queries by determining an overlap between a first data record in a first location hierarchy and at  
3 least one second data record in a second location hierarchy.
  
- 1 (3) The system of claim 1 wherein said system is adapted to perform said location intersect  
2 queries by determining an overlap between a first data type in a first location hierarchy and at  
3 least one second data type in a second location hierarchy.
  
- 1 (4) The system of claim 1 wherein said system is adapted to perform said location intersect  
2 queries by determining an overlap between a first data type in a first location hierarchy and at  
3 least one first data record in a second location hierarchy.
  
- 1 (5) The system of claim 1 wherein said system is further adapted to associate each of said  
2 data records with a time, wherein said time may be selectively defined as fixed, relative to a user,  
3 and relative to said system, and to further perform queries for quickly retrieving said data records  
4 based upon time.
  
- 1 (6) The system of claim 1 wherein each of said attributes may be defined as fixed or as a  
2 dynamic rule that is embedded into the data record and that includes at least one variable, and  
3 wherein said system is further adapted to perform queries that run said dynamic rules in order to  
4 quickly retrieve data records.
  
- 1 (7) The system of claim 1 wherein said system is adapted for use in a retail environment and  
2 wherein said plurality of interrelated location hierarchies comprises:

3 an advertising hierarchy for mapping promotions to particular marketing areas;  
4 a geographic hierarchy containing uniform postal codes; and  
5 a distribution hierarchy for mapping stores to particular distribution areas.

1 (8) The system of claim 7 wherein said stores are defined by a first data type, wherein  
2 products are defined by a second data type, and wherein a relationship is created between said  
3 first and second data types, thereby associating products to stores.

1 (9) The system of claim 8 wherein said relationship between said first and second data types  
2 includes an extended attribute representing inventories of said products within said stores.

1 (10) A system for managing and utilizing time-based information, said system being adapted  
2 to create a plurality of data elements which may each be associated with a time, wherein said  
3 time may be selectively defined as fixed, relative to a user, and relative to said system, and to  
4 perform queries for quickly retrieving data elements based upon time.

1 (11) The system of claim 10 wherein each of said data elements includes a plurality of user-  
2 definable attributes, wherein each of said attributes may be defined as fixed or as a dynamic rule  
3 that is embedded as part of the data element and that includes at least one variable, and wherein  
4 said queries are adapted to run said dynamic rules in order to quickly retrieve data elements.

1 (12) The system of claim 11 wherein said system is further adapted to create a plurality of  
2 interrelated location hierarchies, to map said data elements into said location hierarchies, to  
3 create relationships between said data elements, and to perform location intersection queries for  
4 quickly retrieving data elements.

1 (13) A system for managing and utilizing location and time-based information, said system  
2 being adapted to create a plurality of data elements each including a plurality of user-definable  
3 attributes, wherein each of said attributes may be defined as fixed or as a dynamic rule that is  
4 embedded as part of the data element and that includes at least one variable, and to perform  
5 queries that run said dynamic rules in order to quickly retrieve data elements.

1 (14) The system of claim 13 wherein said at least one variable comprises time.

1 (15) The system of claim 13 wherein said at least one variable comprises location.

1 (16) A system for managing and utilizing location and time-based information comprising:  
2 a first portion adapted to receive location information, and to create a plurality of  
3 interrelated location hierarchies based upon said location information;  
4 a second portion adapted to receive content information, and to create a plurality of  
5 content types based upon said content information, each of said content types including a  
6 plurality of attributes;  
7 a third portion adapted to receive relationship information, and to create relationships  
8 between different content types;  
9 a fourth portion adapted to create data records within said plurality of content types, by  
10 providing values for attributes of said content types;  
11 a fifth portion adapted to associate said data records to locations within said plurality of  
12 interrelated location hierarchies; and  
13 a sixth portion adapted to receive location and time-based queries and to retrieve relevant  
14 data records, based upon said queries.

1 (17) The system of claim 16 wherein said fourth portion is adapted to define attributes by use  
2 of micro-rules, which allow the value of said attributes to vary based upon at least one variable,  
3 and wherein said sixth portion is adapted to run said micro-rules to perform said queries.

1 (18) The system of claim 17 wherein said at least one variable comprises time.

1 (19) The system of claim 17 wherein said at least one variable comprises location.

1 (20) The system of claim 16 further comprising:  
2 a seventh portion adapted to create macro-rules that are applied to data records returned  
3 from a query.

1 (21) The system of claim 20 wherein said macro-rules are adapted to arrange said data records  
2 in a user-selectable format.

1 (22) The system of claim 16 wherein said system is adapted for use in a retail environment  
2 and wherein said plurality of interrelated location hierarchies comprises:

3 an advertising hierarchy for mapping promotions to particular marketing areas;  
4 a geographic hierarchy containing uniform postal codes; and  
5 a distribution hierarchy for mapping stores to particular distribution areas.

1 (23) The system of claim 22 wherein said stores are defined by a first data type, wherein  
2 products are defined by a second data type, and wherein a relationship is created between said  
3 first and second data types, thereby associating said products and said stores.

1 (24) The system of claim 23 wherein said relationship between said first and second data types  
2 includes an extended attribute representing inventories of said products within said stores.

1 (25) A method for managing and utilizing location and time-based information comprising the  
2 steps of:

3 creating a plurality of interrelated location hierarchies;  
4 creating a plurality of data types each having user-definable attributes;  
5 creating data records within said plurality of data types by providing values for said user-  
6 definable attributes;  
7 mapping said data records into said location hierarchies;  
8 creating relationships between said data types and records; and  
9 performing location intersect queries for quickly retrieving data records.

1 (26) The method of claim 25 further comprising the steps of:  
2 associating at least one of said data records with a time, wherein said time may be  
3 selectively defined as fixed, relative to a user, and relative to said system; and  
4 performing queries for quickly retrieving said data records based upon time.

1 (26) The method of claim 25 wherein each of said attributes may be defined as fixed or as a  
2 dynamic rule that is embedded into the data record, and further comprising the step of:  
3 performing queries that run said dynamic rules in order to quickly retrieve data records.

1 (27) The method of claim 26 wherein at least one of said dynamic rules is time-based.

1 (28) The method of claim 26 wherein at least one of said dynamic rules is location-based.

1 (29) The method of claim 26 further comprising the step of:  
2 creating macro-rules that are applied to data records returned from a query, said macro-  
3 rules being adapted to change the value of attributes of said returned data records based upon  
4 business logic within said macro-rules.

1 (30) A method for managing and utilizing location and time-based information comprising:  
2 receiving location information from a user;  
3 creating a plurality of interrelated location hierarchies based upon said location  
4 information;  
5 receiving data from a user;  
6 creating a plurality of data types each including a plurality of attributes, based upon said  
data;  
7 creating relationships between different data types;  
8 creating data records within said plurality of data types, by providing values for attributes  
9 of said plurality of data types;  
10 associating said data records to times and to locations within said plurality of interrelated  
location hierarchies;  
11 receiving location and time-based queries; and  
12 retrieving relevant data records, based upon said queries.

1 (31) The method of claim 30 further comprising the steps of:  
2 defining attributes by use of micro-rules, which allow the value of said attributes to vary  
3 based upon at least one variable; and  
4 running said micro-rules while performing said queries in order to quickly retrieve said  
5 data records.

1 (32) The method of claim 31 further comprising the step of:  
2 creating macro-rules that are applied to data records returned from a query, said macro-  
3 rules being adapted to change the value of attributes of said returned data records based upon

4 business logic within said macro-rules, which is based upon an input selected from the group  
5 consisting of time and location.

1 (33) The method of claim 31 further comprising the step of:  
2 creating macro-rules for arranging said data records in a user-selectable format.